Observations of the Transit of Mercury on November 7 and 8, 1881.

By A. V. Nursinga Row, Esq., of Vizagapatam, India.

(*Communicated by request by Piazzi Smyth, Edinburgh.*)

The above well-known and liberal-minded amateur astronomer, computer, and meteorologist, commenced preparations for the above Transit by computing the times of the principal phases for his place of observation by Mr. Woolhouse's formula in the Appendix to the *Nautical Almanac* for 1836. In these computations he assumed the longitude of his Observatory at $5^h\ 33^m\ 30^s$ East; the geographical latitude = 17° 42′ 9″ North; and the geocentric latitude = 17° 35′ 37″. The computed times of the phases visible at Vizagapatam are:—

	h	m	s	
Middle of Transit ...	18	30	50	Vizagapatam Mean Time.
Internal contact at Egress	21	9	58	
External contact at Egress	21	11	41	

When the Sun rose on November 8, Civil reckoning, Mr. Nursinga Row was at the eye-end of his telescope, an excellent 6-inch objective one by Messrs. Cooke & Sons, equatoreally mounted under a revolving dome, and was prepared to observe the remainder of the Transit, the planet having entered on the disk of the Sun, and having almost completed half of its course at sunrise. He believes accordingly that he saw that the middle of the Transit occurred at $6^h\ 30^m\ 50^s{\cdot}4$ A.M. with a least distance for the centres of 3′ 52″. But at this stage of the proceedings there came pouring into his Observatory such a stream of his English lady and gentlemen friends, that Mr. Nursinga Row confesses he rather lost his presence of mind as an observer. The egress of the planet was afterwards beheld; and found to agree closely with the time computed beforehand.

The Merope Nebula. By Lewis Swift, Esq.

This nebula, so easily seen by some, and which is not at all discernible by others, even with the largest and best telescopes, is *par excellence* the greatest enigma in observational astronomy. That an object of such easy and unmistakable visibility through a 3-inch telescope should be wholly invisible through the 18½-in. Refractor of the Chicago Observatory, seems at first thought to be at variance with the generally received opinion that the larger the telescope, the brighter an object appears.

My experience with this nebula has been as follows:—In 1874, while searching for comets, I ran upon it, and having never heard of a nebula in the *Pleiades*, strongly suspected that

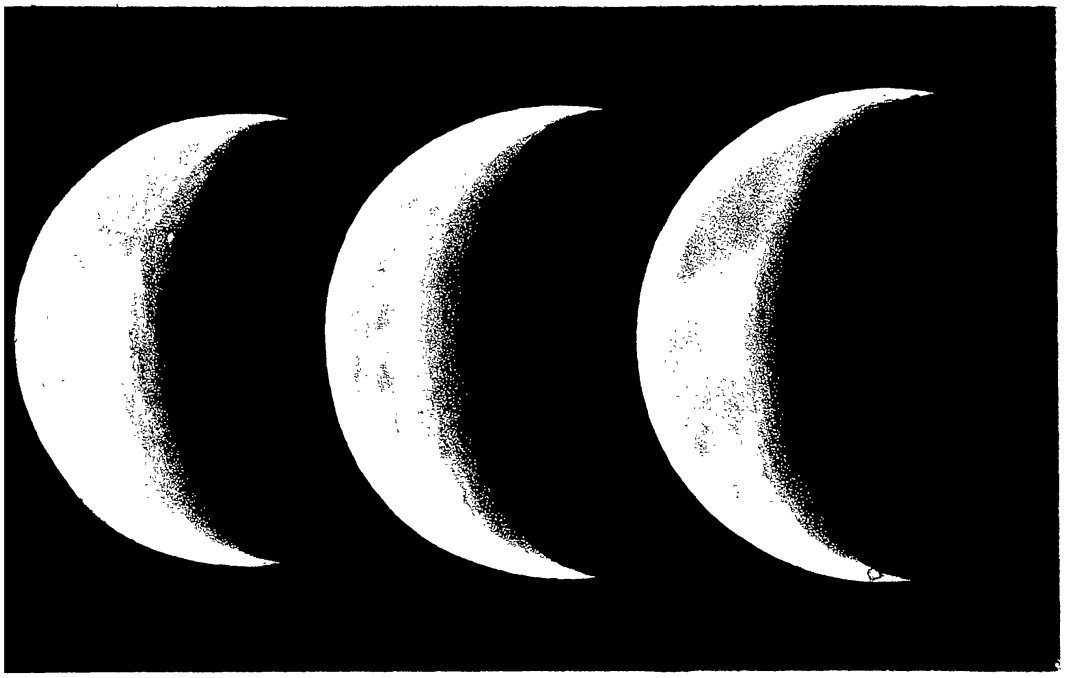
it was a new comet, which illusion the following night quickly dispelled, as the object was stationary. I wrote the fact to Mr. Burnham, who replied that it was a variable nebula, discovered by Tempel in 1859. Feeling a great interest in the object, I, from that time to the present, have not failed, on every favourable occasion, to carefully observe it for the purpose of satisfying myself as to the fact of its variability, with the result that for seven years it has shown to my eye and instrument no sign whatever of change. My object in inviting the attention of the readers of the *Notices* to this subject is, however, not to discuss this question of variability, but its existence, which to me is as palpable as that of the great nebula in the *Triangles* (M. 33), which, except in brightness, it greatly resembles. It is a far easier object to observe than the great nebula closely following *ζ Orionis* (H.V. 28=G.C. 1227). Though this latter nebula is catalogued as single, I make it quadruple.

I am told that no larger telescope will show it, even as a single nebula, from its close proximity to the overpowering light of the star. The question here arises—Why will not a large telescope be as effectual as a small one in revealing faint nebulæ close to very bright stars? The reason is obvious, though at a mere glance, apparently contrary to the well-known principle of optics, that two objects, in close juxtaposition, maintain the same relative brightness, whether the telescope be large or small. To me this law holds good only when star is compared with star, or nebula with nebula, and not when one body is a star which cannot be magnified, and the other a nebula which can. Then, too, with large telescopes, eyepieces of higher power are generally used and the field correspondingly contracted, and so, of course, the opportunity for contrasting the faint light of the nebula with the surrounding dark sky is diminished if not entirely lost.

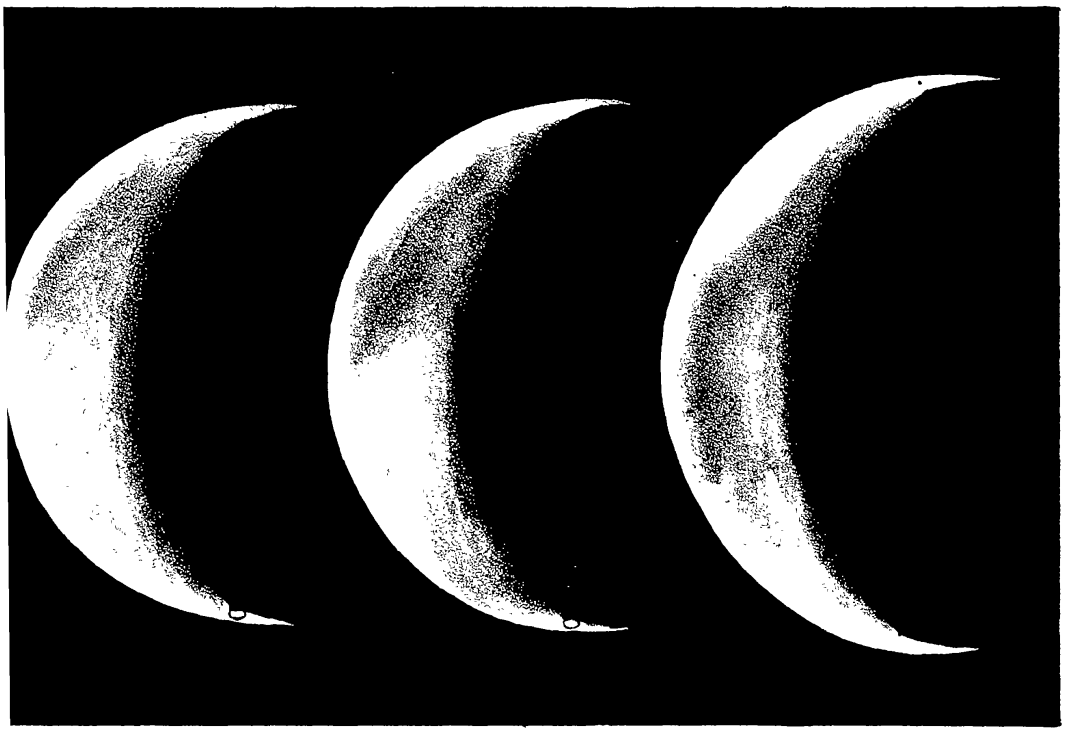
Professor Hough and Mr. Burnham are unable to see, or even glimpse, the *Merope* nebula with the great Refractor of the Chicago Observatory, and they therefore doubt its existence. It is quite natural for those trained observers, with such an instrument, to call into question the reality of a nebula which they are unable to see—in fact, find darkness only where observers with small telescopes see a nebula. They ascribe the nebulous appearance to a halo surrounding *Merope*; but why do hundreds of people observe it around and following *Merope*, and not around and following *Alcyone* and the other bright stars of the group? It is certainly very strange that of all the stars in the heavens, *Merope* alone should show nebulosity immediately following it!

The object is quite large, and appears triangular with the corners rounded off. Though quite faint, I have seen it with a 2-in. aperture on my 4½-in. telescope, using my comet eyepiece, power 25.

VENUS. 1881.

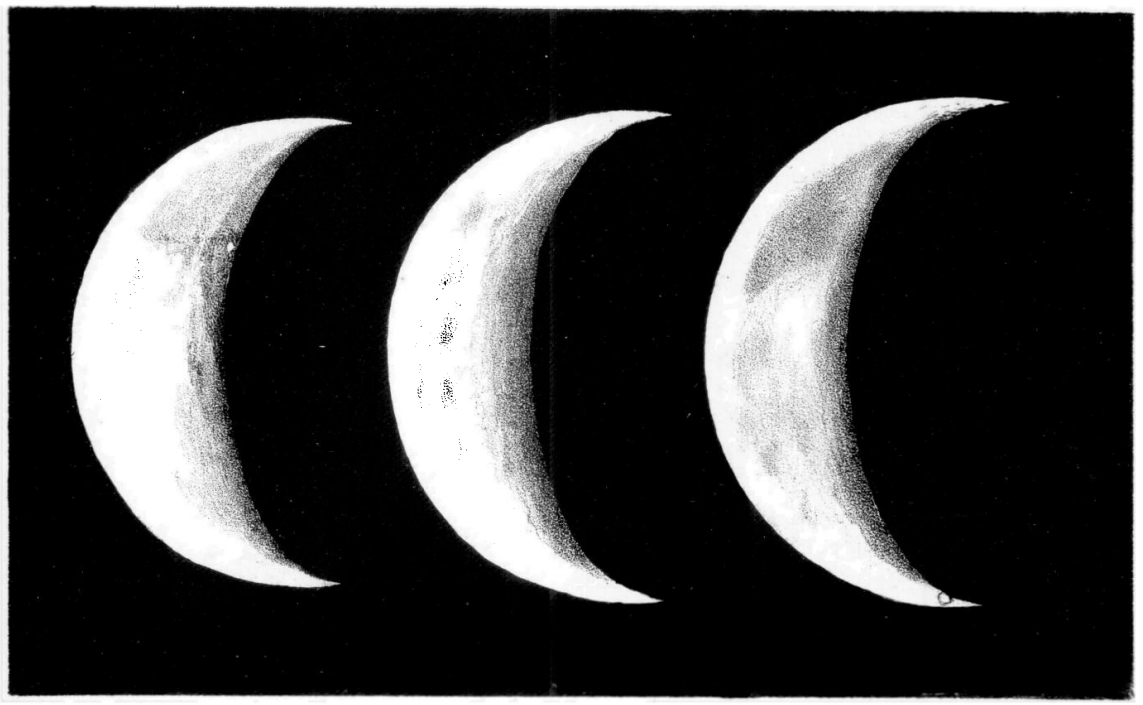


Mar. 22, 6h. *Mar. 26, 7h.* *Mar. 28, 6½h.*

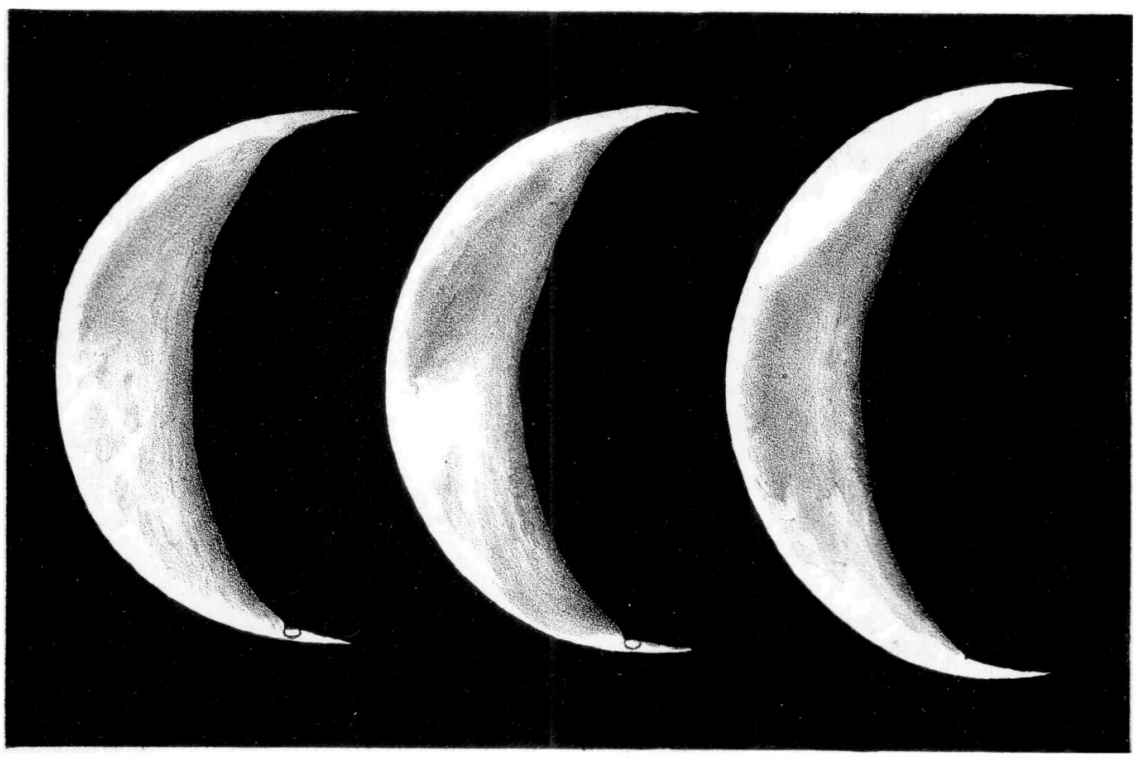


Mar. 30, 6¾h. *Mar. 31, 6¾h.* *Apr. 5, 6¼h.*

VENUS. 1881.



Mar: 22, 6h. Mar: 26, 7h. Mar: 28, 6½h.



Mar: 30, 6¾h. Mar: 31, 6¾h. Apr: 5, 6¼h.

W.F. Denning, del. Spottiswoode & Co. Lith. London

If Messrs. Hough and Burnham will contract the aperture of their telescope to from 4 to 6 inches, and use a power of about 30, they will see as a reality what they now believe to be a myth.

Rochester, N.Y.:
1881, *December* 2.

Observations of Venus in the Spring of 1881.
By W. F. Denning, Esq.

In the months of March and April 1881 *Venus* became a splendid object in the evening sky, and I undertook a series of observations chiefly in those months, with a view to recover the delicate markings recorded by some earlier observers. The first observation was made on December 10, 1880, but the planet was near the horizon, and her diameter only 13″·8, so that nothing definite was seen.

1880, *December* 20, $3^h\ 40^m$–$4^h\ 5^m$.—*Venus* well defined with power 200. There were spots of the most certain character, though extremely faint.

1881, *January* 6, $3^h\ 50^m$–$4^h\ 5^m$: power 200.—Some minute markings or centres of shading, apparently giving the surface a mottled aspect, just barely discerned. A few light specks were apparent towards the circular contour of the W. limb, where the brightness of the disk was very conspicuous.

January 31, 5^h. No dark markings distinguished.

February 16, 5^h–$5\frac{1}{2}^h$.—*Venus* splendidly defined. The N. horn evidently the sharpest. There were cloudy condensations distributed over the planet's surface except around the W. border, where the brightness was very intense. I suspected crater-like objects of very minute type on the terminator, and a shading running from the N. horn about one-third round, and parallel to the bright interior edge of the planet.

March 1, $4\frac{1}{2}^h$–$5\frac{1}{2}^h$.—Faint dusky patches again seen, but they were extremely delicate, and only caught during moments of superb definition.

March 22, 5^h–7^h.—No distinct spots seen, though at times I suspected minute shadings elongated in latitude between terminator and W. limb. No spots or crater-like objects on the terminator, which is evidently not serrated as some observers have described it. The cusps were markedly bright; so was the surface round the W. limb, but the terminator was much shaded. The rippling appearance of the planet, especially when the air is unsteady, naturally gives the impression of a jagged terminator and mottled aspect of the entire disk as noted by some observers. But though to-night the planet's disk was very closely examined for detail, these appearances could not be certainly descried. The terminator showed some gentle undulations, but there was